

CLAIMS

1. A microarray strip containing microarrays, the microarray strip comprising:
a pocket strip having a number of pockets;
a number of microarrays, each pocket of the pocket strip containing a microarray; and
a cover strip bonded to the pocket strip to create enclosed chambers, each enclosed chamber containing a microarray.
2. The microarray strip of claim 1 wherein the pocket strip and cover strip are plastic and the cover strip is bonded to the pocket strip by heat sealing.
3. The microarray strip of claim 1 wherein the pocket strip is a polymer/metal foil laminate.
4. The microarray strip of claim 1 wherein the cover strip is a metal foil.
5. The microarray strip of claim 1 further including regularly spaced features that facilitate automatic translation and positioning of the microarray strip.
6. The microarray strip of claim 5 wherein the regularly spaced features comprise two sets of tractor feed perforations along each edge of the microarray strip.
7. The microarray strip of claim 5 wherein the regularly spaced features comprise regularly spaced optical features that can be detected by optical scanning.
8. The microarray strip of claim 5 wherein the regularly spaced features comprise regularly spaced features that engage with complementary features of a mechanical translation and positioning mechanism.

9. The microarray strip of claim 5 wherein the regularly spaced features comprise regularly spaced electromechanical features that can be detected by sensors within an electromechanical translation and positioning mechanism.

10. The microarray strip of claim 5 wherein the regularly spaced features comprise regularly spaced features that can be detected by sensors to direct an electromechanical translating and positioning mechanism to translate and position the microarray strip.

11. The microarray strip of claim 1 wherein the cover strip is bonded to the pocket strip via an adhesive sealant.

12. The microarray strip of claim 1 wherein the cover strip is bonded to the pocket strip via mechanical force applied to complementary molded features of the pocket strip and cover strip.

13. The microarray strip of claim 1 wherein the sealed chambers prevent exchange of liquid and vapor phase substances between the interior of the sealed chambers and the external environment.

14. The microarray strip of claim 1 wherein each pocket has molded features for positioning and orienting a microarray within the pocket.

15. The microarray strip of claim 1 wherein, following insertion of a microarray into a pocket and bonding of a cover strip over the pocket, a gap remains between the upper surface of the microarray and the inner surface of the cover strip.

16. The microarray strip of claim 1 wherein, following insertion of a microarray into a pocket, gaps remain between surfaces of the microarray and the bottom and side surfaces of the microarray to create a well into which solutions can be introduced.

17. The microarray strip of claim 15 further including one or more septa affixed to a surface of the cover strip directly above the well, providing resealable ports through which solutions and gasses can be introduced into the well and through which solutions and gasses can be extracted from the well.

18. A method for packaging a number of microarrays, the method comprising:
providing a pocket strip having a series of pockets;
positioning the microarrays into pockets of the pocket strip; and
bonding a cover strip onto the pocket strip to seal the microarrays within the pockets, thereby creating a microarray strip.

19. The method of claim 17 further including providing regularly spaced features along the microarray strip that are employed to translate and position the microarray strip within automated systems.

20. The method of claim 17 further including providing septa affixed to the cover strip as resealable ports for introducing solutions and gasses into, and extracting solutions and gasses from, the sealed pockets containing microarrays.

21. The method of claim 17 further including providing support features within the pockets of the microarray strip array for positioning and orienting microarrays within the pockets.

22. The method of claim 17 further including packaging the microarray strip within a second pocket tape to further protect the microarray strip.

23. A method for manufacturing an extended microarray containing a number of features, the method comprising:
partitioning the features into groups of features;
placing each group of features on different microarrays; and

embedding the microarrays within a microarray strip in a particular sequence to provide an extended microarray.

24. The method of claim 23 wherein the extended microarray contains more features than can be accommodated on a single microarray by a particular manufacturing technique.

25. A method for distributing a number of microarrays , the method comprising:
packaging the number of microarrays into a microarray strip in a particular order;
recording the particular order in a recordation; and
shipping the microarray strip together with the recordation to allow individual microarrays and groups of microarrays to be identified and used at a destination.

26. The method of claim 25 wherein the recordation is included on the microarray strip.

27. The method of claim 26 wherein the recordation comprises a number of printed features that are automatically read by optical detection.

28. The method of claim 26 wherein the recordation comprises a number of printed features that are automatically read by electromechanical detection.

29. The method of claim 26 wherein the recordation comprises a number of molded features that are automatically read by optical detection.

30. The method of claim 26 wherein the recordation comprises a number of molded features that are automatically read by electromechanical detection.

31. A method for scanning a sequence of microarrays, the method comprising:
placing the number of microarrays into a pocket strip in a particular order;
affixing a transparent cover strip to the pocket strip; and

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scanning each microarray through the transparent pocket strip.

Figure 1. Schematic diagram of the microarray scanning system. The microarray is placed on a transparent pocket strip, which is then scanned by a laser beam. The resulting fluorescence signal is detected by a photomultiplier tube (PMT) and converted into a digital signal by an analog-to-digital converter (ADC). The digital signal is then processed by a computer to generate a microarray image.